

[DISCUSSION DRAFT]

1 **TITLE VIII—HYDROGEN**

2 **SEC. 801. DEFINITIONS.**

3 In this title:

4 (1) **ADVISORY COMMITTEE.**—The term “Advi-
5 sory Committee” means the Hydrogen Technical and
6 Fuel Cell Advisory Committee established under sec-
7 tion 805.

8 (2) **DEPARTMENT.**—The term “Department”
9 means the Department of Energy.

10 (3) **FUEL CELL.**—The term “fuel cell” means a
11 device that directly converts the chemical energy of
12 a fuel and an oxidant into electricity by an electro-
13 chemical process taking place at separate electrodes
14 in the device.

15 (4) **INFRASTRUCTURE.**—The term “infrastruc-
16 ture” means the equipment, systems, or facilities
17 used to produce, distribute, deliver, or store hydro-
18 gen.

19 (5) **LIGHT DUTY VEHICLE.**—The term “light
20 duty vehicle” means a car or truck classified by the
21 Department of Transportation as a Class I or IIA
22 vehicle.



1 (6) SECRETARY.—The term “Secretary” means
2 the Secretary of Energy.

3 **SEC. 802. PLAN.**

4 Not later than 6 months after the date of enactment
5 of this Act, the Secretary shall transmit to Congress a
6 coordinated plan for the programs described in this title
7 and any other programs of the Department that are di-
8 rectly related to fuel cells or hydrogen. The plan shall de-
9 scribe, at a minimum—

10 (1) the agenda for the next 5 years for the pro-
11 grams authorized under this title, including the
12 agenda for each activity enumerated in section
13 803(a);

14 (2) the types of entities that will carry out the
15 activities under this title and what role each entity
16 is expected to play;

17 (3) the milestones that will be used to evaluate
18 the programs for the next 5 years;

19 (4) the most significant technical and nontech-
20 nical hurdles that stand in the way of achieving the
21 goals described in section 803(b), and how the pro-
22 grams will address those hurdles; and

23 (5) the policy assumptions that are implicit in
24 the plan, including any assumptions that would af-



1 fect the sources of hydrogen or the marketability of
2 hydrogen-related products.

3 **SEC. 803. PROGRAMS.**

4 (a) **ACTIVITIES.**—The Secretary, in partnership with
5 the private sector, shall conduct programs to address—

6 (1) production of hydrogen from diverse energy
7 sources, including—

8 (A) fossil fuels, which may include carbon
9 capture and sequestration;

10 (B) hydrogen-carrier fuels (including eth-
11 anol and methanol);

12 (C) renewable energy resources, including
13 biomass; and

14 (D) nuclear energy;

15 (2) use of hydrogen for commercial, industrial,
16 and residential electric power generation;

17 (3) safe delivery of hydrogen or hydrogen-car-
18 rier fuels, including—

19 (A) transmission by pipeline and other dis-
20 tribution methods; and

21 (B) convenient and economic refueling of
22 vehicles either at central refueling stations or
23 through distributed on-site generation;

24 (4) advanced vehicle technologies, including—

25 (A) engine and emission control systems;



1 (B) energy storage, electric propulsion, and
2 hybrid systems;

3 (C) automotive materials; and

4 (D) other advanced vehicle technologies;

5 (5) storage of hydrogen or hydrogen-carrier
6 fuels, including development of materials for safe
7 and economic storage in gaseous, liquid, or solid
8 form at refueling facilities and onboard vehicles;

9 (6) development of safe, durable, affordable,
10 and efficient fuel cells, including fuel-flexible fuel cell
11 power systems, improved manufacturing processes,
12 high-temperature membranes, cost-effective fuel
13 processing for natural gas, fuel cell stack and system
14 reliability, low temperature operation, and cold start
15 capability;

16 (7) development, after consultation with the pri-
17 vate sector, of necessary codes and standards (in-
18 cluding international codes and standards and vol-
19 untary consensus standards adopted in accordance
20 with OMB Circular A-119) and safety practices for
21 the production, distribution, storage, and use of hy-
22 drogen, hydrogen-carrier fuels, and related products;
23 and



1 (8) a public education program to develop im-
2 proved knowledge and acceptability of hydrogen-
3 based systems.

4 (b) PROGRAM GOALS.—

5 (1) VEHICLES.—For vehicles, the goals of the
6 program are—

7 (A) to enable a commitment by auto-
8 makers no later than year 2015 to offer safe,
9 affordable, and technically viable hydrogen fuel
10 cell vehicles in the mass consumer market; and

11 (B) to enable production, delivery, and ac-
12 ceptance by consumers of model year 2020 hy-
13 drogen fuel cell and other hydrogen-powered ve-
14 hicles that will have—

15 (i) a range of at least 300 miles;

16 (ii) improved performance and ease of
17 driving;

18 (iii) safety and performance com-
19 parable to vehicle technologies in the mar-
20 ket; and

21 (iv) when compared to light duty vehi-
22 cles in model year 2003—

23 (I) fuel economy that is substan-
24 tially higher;



- 1 (II) substantially lower emissions
2 of air pollutants; and
3 (III) equivalent or improved vehi-
4 cle fuel system crash integrity and oc-
5 cupant protection.

6 (2) HYDROGEN ENERGY AND ENERGY INFRA-
7 STRUCTURE.—For hydrogen energy and energy in-
8 frastructure, the goals of the program are to enable
9 a commitment not later than 2015 that will lead to
10 infrastructure by 2020 that will provide—

11 (A) safe and convenient refueling;

12 (B) improved overall efficiency;

13 (C) widespread availability of hydrogen
14 from domestic energy sources through—

15 (i) production, with consideration of
16 emissions levels;

17 (ii) delivery, including transmission by
18 pipeline and other distribution methods for
19 hydrogen; and

20 (iii) storage, including storage in sur-
21 face transportation vehicles;

22 (D) hydrogen for fuel cells, internal com-
23 bustion engines, and other energy conversion
24 devices for portable, stationary, and transpor-
25 tation applications; and



1 (E) other technologies consistent with the
2 Department's plan.

3 (3) FUEL CELLS.—The goals for fuel cells and
4 their portable, stationary, and transportation appli-
5 cations are to enable—

6 (A) safe, economical, and environmentally
7 sound hydrogen fuel cells;

8 (B) fuel cells for light duty and other vehi-
9 cles; and

10 (C) other technologies consistent with the
11 Department's plan.

12 (e) DEMONSTRATION.—In carrying out the programs
13 under this section, the Secretary shall fund a limited num-
14 ber of demonstration projects, consistent with a deter-
15 mination of the maturity, cost-effectiveness, and environ-
16 mental impacts of technologies supporting each project. In
17 selecting projects under this subsection, the Secretary
18 shall, to the extent practicable and in the public interest,
19 select projects that—

20 (1) involve using hydrogen and related products
21 at existing facilities or installations, such as existing
22 office buildings, military bases, vehicle fleet centers,
23 transit bus authorities, or units of the National Park
24 System;



1 (2) depend on reliable power from hydrogen to
2 carry out essential activities;

3 (3) lead to the replication of hydrogen tech-
4 nologies and draw such technologies into the market-
5 place;

6 (4) include vehicle, portable, and stationary
7 demonstrations of fuel cell and hydrogen-based en-
8 ergy technologies;

9 (5) address the interdependency of demand for
10 hydrogen fuel cell applications and hydrogen fuel in-
11 frastructure;

12 (6) raise awareness of hydrogen technology
13 among the public;

14 (7) facilitate identification of an optimum tech-
15 nology among competing alternatives;

16 (8) address distributed generation using renew-
17 able sources; and

18 (9) address applications specific to rural or re-
19 mote locations, including isolated villages and is-
20 lands, the National Park System, and tribal entities.

21 The Secretary shall give preference to projects which ad-
22 dress multiple elements contained in paragraphs (1)
23 through (9).

24 (d) DEPLOYMENT.—In carrying out the programs
25 under this section, the Secretary shall, in partnership with



1 the private sector, conduct activities to facilitate the de-
2 ployment of hydrogen energy and energy infrastructure,
3 fuel cells, and advanced vehicle technologies.

4 (e) FUNDING.—

5 (1) IN GENERAL.—The Secretary shall carry
6 out the programs under this section using a competi-
7 tive, merit-based review process and consistent with
8 the generally applicable Federal laws and regulations
9 governing awards of financial assistance, contracts,
10 or other agreements.

11 (2) RESEARCH CENTERS.—Activities under this
12 section may be carried out by funding nationally rec-
13 ognized university-based or Federal laboratory re-
14 search centers.

15 (f) COST SHARING.—

16 (1) RESEARCH AND DEVELOPMENT.—Except as
17 otherwise provided in this title, for research and de-
18 velopment programs carried out under this title the
19 Secretary shall require a commitment from non-Fed-
20 eral sources of at least 20 percent of the cost of the
21 project. The Secretary may reduce or eliminate the
22 non-Federal requirement under this paragraph if the
23 Secretary determines that the research and develop-
24 ment is of a basic or fundamental nature or involves
25 technical analyses or educational activities.



1 (2) DEMONSTRATION AND COMMERCIAL APPLI-
2 CATION.—Except as otherwise provided in this title,
3 the Secretary shall require at least 50 percent of the
4 costs directly and specifically related to any dem-
5 onstration or commercial application project under
6 this title to be provided from non-Federal sources.
7 The Secretary may reduce the non-Federal require-
8 ment under this paragraph if the Secretary deter-
9 mines that the reduction is necessary and appro-
10 pate considering the technological risks involved in
11 the project and is necessary to meet the objectives
12 of this title.

13 (3) CALCULATION OF AMOUNT.—In calculating
14 the amount of the non-Federal commitment under
15 paragraph (1) or (2), the Secretary may include per-
16 sonnel, services, equipment, and other resources.

17 (4) SIZE OF NON-FEDERAL SHARE.—The Sec-
18 retary may consider the size of the non-Federal
19 share in selecting projects.

20 (g) DISCLOSURE.—Section 623 of the Energy Policy
21 Act of 1992 (42 U.S.C. 13293) relating to the protection
22 of information shall apply to projects carried out through
23 grants, cooperative agreements, or contracts under this
24 title.



1 **SEC. 804. INTERAGENCY TASK FORCE.**

2 (a) ESTABLISHMENT.—Not later than 120 days after
3 the date of enactment of this Act, the President shall es-
4 tablish an interagency task force chaired by the Secretary
5 with representatives from each of the following:

6 (1) The Office of Science and Technology Pol-
7 icy within the Executive Office of the President.

8 (2) The Department of Transportation.

9 (3) The Department of Defense.

10 (4) The Department of Commerce (including
11 the National Institute of Standards and Tech-
12 nology).

13 (5) The Department of State.

14 (6) The Environmental Protection Agency.

15 (7) The National Aeronautics and Space Ad-
16 ministration.

17 (8) Other Federal agencies as the Secretary de-
18 termines appropriate.

19 (b) DUTIES.—

20 (1) PLANNING.—The interagency task force
21 shall work toward—

22 (A) a safe, economical, and environ-
23 mentally sound fuel infrastructure for hydrogen
24 and hydrogen-carrier fuels, including an infra-
25 structure that supports buses and other fleet
26 transportation;



1 (B) fuel cells in government and other ap-
2 plications, including portable, stationary, and
3 transportation applications;

4 (C) distributed power generation, including
5 the generation of combined heat, power, and
6 clean fuels including hydrogen;

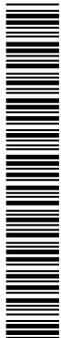
7 (D) uniform hydrogen codes, standards,
8 and safety protocols; and

9 (E) vehicle hydrogen fuel system integrity
10 safety performance.

11 (2) ACTIVITIES.—The interagency task force
12 may organize workshops and conferences, may issue
13 publications, and may create databases to carry out
14 its duties. The interagency task force shall—

15 (A) foster the exchange of generic, non-
16 proprietary information and technology among
17 industry, academia, and government;

18 (B) develop and maintain an inventory and
19 assessment of hydrogen, fuel cells, and other
20 advanced technologies, including the commercial
21 capability of each technology for the economic
22 and environmentally safe production, distribu-
23 tion, delivery, storage, and use of hydrogen;



1 (C) integrate technical and other informa-
2 tion made available as a result of the programs
3 and activities under this title;

4 (D) promote the marketplace introduction
5 of infrastructure for hydrogen fuel vehicles; and

6 (E) conduct an education program to pro-
7 vide hydrogen and fuel cell information to po-
8 tential end-users.

9 (c) AGENCY COOPERATION.—The heads of all agen-
10 cies, including those whose agencies are not represented
11 on the interagency task force, shall cooperate with and
12 furnish information to the interagency task force, the Ad-
13 visory Committee, and the Department.

14 **SEC. 805. ADVISORY COMMITTEE.**

15 (a) ESTABLISHMENT.—The Hydrogen Technical and
16 Fuel Cell Advisory Committee is established to advise the
17 Secretary on the programs and activities under this title.

18 (b) MEMBERSHIP.—

19 (1) MEMBERS.—The Advisory Committee shall
20 be comprised of not fewer than 12 nor more than 25
21 members. The members shall be appointed by the
22 Secretary to represent domestic industry, academia,
23 professional societies, government agencies, Federal
24 laboratories, previous advisory panels, and financial,
25 environmental, and other appropriate organizations



1 based on the Department's assessment of the tech-
2 nical and other qualifications of committee members
3 and the needs of the Advisory Committee.

4 (2) TERMS.—The term of a member of the Ad-
5 visory Committee shall not be more than 3 years.
6 The Secretary may appoint members of the Advisory
7 Committee in a manner that allows the terms of the
8 members serving at any time to expire at spaced in-
9 tervals so as to ensure continuity in the functioning
10 of the Advisory Committee. A member of the Advi-
11 sory Committee whose term is expiring may be re-
12 appointed.

13 (3) CHAIRPERSON.—The Advisory Committee
14 shall have a chairperson, who is elected by the mem-
15 bers from among their number.

16 (c) REVIEW.—The Advisory Committee shall review
17 and make recommendations to the Secretary on—

18 (1) the implementation of programs and activi-
19 ties under this title;

20 (2) the safety, economical, and environmental
21 consequences of technologies for the production, dis-
22 tribution, delivery, storage, or use of hydrogen en-
23 ergy and fuel cells; and

24 (3) the plan under section 802.

25 (d) RESPONSE.—



1 (1) CONSIDERATION OF RECOMMENDATIONS.—
2 The Secretary shall consider, but need not adopt,
3 any recommendations of the Advisory Committee
4 under subsection (c).

5 (2) BIENNIAL REPORT.—The Secretary shall
6 transmit a biennial report to Congress describing
7 any recommendations made by the Advisory Com-
8 mittee since the previous report. The report shall in-
9 clude a description of how the Secretary has imple-
10 mented or plans to implement the recommendations,
11 or an explanation of the reasons that a recommenda-
12 tion will not be implemented. The report shall be
13 transmitted along with the President's budget pro-
14 posal.

15 (e) SUPPORT.—The Secretary shall provide resources
16 necessary in the judgment of the Secretary for the Advi-
17 sory Committee to carry out its responsibilities under this
18 title.

19 **SEC. 806. EXTERNAL REVIEW.**

20 (a) PLAN.—The Secretary shall enter into an ar-
21 rangement with the National Academy of Sciences to re-
22 view the plan prepared under section 802, which shall be
23 completed not later than 6 months after the Academy re-
24 ceives the plan. Not later than 45 days after receiving the
25 review, the Secretary shall transmit the review to Congress



1 along with a plan to implement the review's recommenda-
2 tions or an explanation of the reasons that a recommenda-
3 tion will not be implemented.

4 (b) **ADDITIONAL REVIEW.**—The Secretary shall enter
5 into an arrangement with the National Academy of
6 Sciences under which the Academy will review the pro-
7 grams under section 803 during the fourth year following
8 the date of enactment of this Act. The Academy's review
9 shall include the research priorities and technical mile-
10 stones, and evaluate the progress toward achieving them.
11 The review shall be completed not later than 5 years after
12 the date of enactment of this Act. Not later than 45 days
13 after receiving the review, the Secretary shall transmit the
14 review to Congress along with a plan to implement the
15 review's recommendations or an explanation for the rea-
16 sons that a recommendation will not be implemented.

17 **SEC. 807. MISCELLANEOUS PROVISIONS.**

18 (a) **REPRESENTATION.**—The Secretary may rep-
19 resent the United States interests with respect to activities
20 and programs under this title, in coordination with the
21 Department of Transportation, the National Institute of
22 Standards and Technology, and other relevant Federal
23 agencies, before governments and nongovernmental orga-
24 nizations including—



1 (1) other Federal, State, regional, and local
2 governments and their representatives;

3 (2) industry and its representatives, including
4 members of the energy and transportation indus-
5 tries; and

6 (3) in consultation with the Department of
7 State, foreign governments and their representatives
8 including international organizations.

9 (b) REGULATORY AUTHORITY.—Nothing in this title
10 shall be construed to alter the regulatory authority of the
11 Department.

12 **SEC. 808. SAVINGS CLAUSE.**

13 Nothing in this title shall be construed to affect the
14 authority of the Secretary of Transportation that may
15 exist prior to the date of enactment of this Act with re-
16 spect to—

17 (1) research into, and regulation of, hydrogen-
18 powered vehicles fuel systems integrity, standards,
19 and safety under subtitle VI of title 49, United
20 States Code;

21 (2) regulation of hazardous materials transpor-
22 tation under chapter 51 of title 49, United States
23 Code;

24 (3) regulation of pipeline safety under chapter
25 601 of title 49, United States Code;



1 (4) encouragement and promotion of research,
2 development, and deployment activities relating to
3 advanced vehicle technologies under section 5506 of
4 title 49, United States Code;

5 (5) regulation of motor vehicle safety under
6 chapter 301 of title 49, United States Code;

7 (6) automobile fuel economy under chapter 329
8 of title 49, United States Code; or

9 (7) representation of the interests of the United
10 States with respect to the activities and programs
11 under the authority of title 49, United States Code.

12 **SEC. 809. AUTHORIZATION OF APPROPRIATIONS.**

13 There are authorized to be appropriated to the Sec-
14 retary to carry out this title, in addition to any amounts
15 made available for these purposes under other Acts—

16 (1) \$273,500,000 for fiscal year 2006;

17 (2) \$375,000,000 for fiscal year 2007;

18 (3) \$450,000,000 for fiscal year 2008;

19 (4) \$500,000,000 for fiscal year 2009; and

20 (5) \$550,000,000 for fiscal year 2010.

